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THE WORKING SESSIONS.

*Directed by E. H. Griffith, F. R. M. S., assisted by Dr. Allen Y. Moore,
and Mr. W. C. J. Hall.*

These sessions were as follows: (1) A dredging excursion on the lake Wednesday, from 5 to 7 P. M., in charge of D. S. Kellicott and T. B. Stowell, assisted by B. L. Oviatt, E. H. Sargent and Chas. S. Fellows; (2) Photo-micrography Wednesday evening in the Children's Temple, conducted by Jacob D. Cox, F. R. M. S., assisted by W. H. Walmsley, F. R. M. S.; and, (3) a general session where many experts explained and demonstrated their methods, held in the Gymnasium Thursday P. M.

THE DREDGING EXCURSION.

The purposes of this part of the practical session were: to explain by actual trial the use of the more important tools employed in collecting living forms from comparatively deep water, and to test the nature of the life at different depths of Chautauqua Lake.

As many as could be safely and conveniently accommodated on the steam yacht "Dispatch" visited different parts of the lake, using the apparatus provided, and returning at 7 P. M. to examine the collections.

The apparatus used consisted of the following: (1) A drag, *i. e.*, a sounding lead, through which stout copper wires, $\frac{3}{8}$ of an inch in diameter, had been passed and bent up to act as hooks; this, when dragged through weeds at any depth, brings up a quantity tangled in the wire hooks. Copper wire is used in order that should the hooks take hold of a rock a strong pull straightens them and lets the lead go; the wire may be again bent into place for other trials. (2) A Ball's dredge of usual pattern and attachment. This consisted of an iron frame 18 in. by 5 in.; on either side of this there is an iron scraper 3 in. wide, the lower edges of which are 5 in. apart, whilst the upper or scraping edges are 7 in. apart, thus securing a proper angle to the scraping plates; below the frame is attached a net having the lower third lined with loose cloth, and at the extremity a lead weight to cause the net to sink ahead of the frame and so

not to foul with it; when the drag rope is once and a half or twice as long as the depth of the water, and when a weight is attached a few feet from the frame, this form of dredge has proved quite efficient. (3) A small trawl modeled after that figured in "Science," Vol. III., p. 452. The width of the one used is two feet. (4) A tow net made of a loose strong cloth or silk mull; the ring may be of a size to suit the convenience of the collector; the one used on the occasion was mounted on a brass hoop ten inches in diameter, the net being twice as long as wide; this, made to run at different depths or at the surface by weights and regulation of the speed, is a very efficient method of capture. (5) A modification of the above was used. At the extremity of the net, which should be made shorter than (4), a stout rubber tube two inches long is tied; that part which is tied in is left permanently open, unless stopped by a cork, by putting a short piece of glass-tubing into the rubber tube before tying into the net; a suitable bottle or vial, the bottom of which has been replaced with a bottom of the mull, is slipped into the rubber tube. When the net is landed and held up a few minutes, the water passes out of the net and through the bottom of the vial, the small forms in the meantime passing into it also; the vial may be readily removed and emptied into any receiver. This plan has been found to afford the most efficient water net.

The deepest water found was about three or four miles south of Chautauqua; this did not exceed fifty feet. A variety of aquatic plants were brought up, bearing many forms of infusorial life, also Mollusks, Crustacea and Polyzoa; in the shallow waters a few sponges were taken. It is to be regretted that a more specific report cannot be made, for but little of the material collected has been critically studied.

Mr. Fellows, who undertook the examination of the material taken in the surface net, reports progress as follows: I have partially examined the gathering taken at Lake Chautauqua and find the following forms:

COPEPODA.

Diaptomus sicilis var., Forbes. A new variety of *Diaptomus*, *Episcura lacustris* var., Forbes. *Cyclops* sp., very much resembling *C. Thomasi*, Forbes. *Cyclops*, nov. sp., *Ergasilus*, nov. sp.

CLADOCERA.

Daphnella brachyura, Lievin. *Daphnia cederströmii*, Schoedler. *Ceriodaphnia*, nov. sp. *Chydorus sphaericus*, O. F. Müller. *Leptodora hyalina*, Lilljeborg.

[The above forms regarded as new will be described in time for a paper at the next annual meeting of the Society.]

PHOTOGRAPHY.

The session was opened by Mr. Griffith, the Director, announcing that Messrs. J. D. Cox and W. H. Walmsley had consented to take charge of the subject of photography by lamplight, in its application to the microscope.

Mr. Cox, for himself and Mr. Walmsley, stated that the plan they had thought most likely to be profitable was to give some examples of actual work on microscopic objects with the camera, interspersed with discussion of practical questions, and of points suggested by members of the Society as the illustrations proceeded. Mr. Walmsley had consented to perform the manipulations, and he (Mr. C.) would discuss the steps taken in the intervals when Mr. W. might be off the platform engaged in the "dark room" work.

Mr. Walmsley first exhibited the apparatus to be used, which is an improvement upon that which has been frequently illustrated by engravings in the microscopical journals. The camera is constructed with a door in the side for reaching the inner partition used in copying photographs, but when this is closed the general construction does not differ from the common double bellows camera with conical front for receiving the microscopic tube. The frame for the extension of the camera and clamping it, is hinged so that it may be easier to pack for transportation. The ground glass screen at the back of the camera has a small clear disc in the center, made by cementing a circular "cover-glass" on the ground glass surface with Canada balsam, which obliterates the roughness, making this spot transparent. By this arrangement the ground surface is used for coarser focusing and the transparent spot for the finer adjustment of the focus by aid of a Darlot focusing glass.

Mr. Walmsley explained that the only change he had recently made in his arrangement of the microscope and light was to discard condensers (with the lower powers) and to be less desirous of secur-